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SCIENCE NEWS LETTER

TECHNOLOGY DEPT.

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Autumnal Feast

See Page 314

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ASTRONOMY

Earth Slowing With Age

Saving cancer patients' lives by removing adrenal gland and possible cause for goiter prevalence reported to National Academy of Sciences meeting.

➤ THERE SEEMS to be no question but that the earth is slowing down with age, but just how much is another question. The rotation of the earth, which measures time for us here on earth, does fluctuate perhaps as much as a little more than a half a minute per century.

Dr. Dirk Brouwer of Yale University told the National Academy of Sciences meeting in New Haven, Conn., that his studies of the rotation of the earth show such complications that mathematically if it is desired to predict the rotation a century hence it will have an uncertainty of about 40 seconds one way or another.

The fluctuations in the earth's rotation do not retain a more or less uniform amplitude as has previously been thought. And it will be necessary to make a new solution for the rate at which the earth's rotation is gradually slowing down due to friction of the ocean tides. For this purpose, Dr. Brouwer recommends the inclusion of all reliable old records of moon eclipses from the most ancient to those just before the invention of the telescope early in the 17th century. This is because the motions of the moon around the earth as well as that of Mercury around the sun provide more accurate clocks over long intervals of time than the rotation of the earth on its axis.

Rearrangements of masses of matter in the interior of the earth are believed by Dr. Brouwer to account for the known irregular changes in the earth's rotation. He considers unnecessary sudden changes inside the earth of relatively large magnitude previously blamed.

Cause of Goiter Prevalence

➤ SEXUAL SELECTION may have played a part in making goiters prevalent in some parts of Europe, Drs. G. E. Hutchinson and Eva M. Low of Yale University and the Academy of Natural Sciences of Philadelphia suggested in a report to the National Academy of Sciences.

The bulging neckline of a goiter was considered highly attractive in a woman in some parts of Europe from the sixteenth century on, according to pictures and books, the scientists find.

If these were the women men preferred as mates and mothers of their children, genes for susceptibility to iodine lack and consequent development of goiter might have been handed down in increasing numbers of the population. This would lead to more and more persons being born with a hereditary susceptibility to goiter.

Evidence of an inherited susceptibility to the action of antithyroid chemicals exists in some animals, the scientists point out. This gives some support to their theory of the development of goiter prevalence in some regions.

Treatment for Anemia

➤ A SUCCESSFUL treatment of Addisonian anemia disease by a new method was reported to the meeting of the National Academy by Dr. Paul R. Burkholder, professor of botany at Yale. He demonstrated that there is a factor present in some gastric juice that holds away from intestinal organisms the vitamin B 12 that is needed to prevent the development of this disease. Prof. Burkholder and cooperating doctors then administered by mouth to patients material containing this factor along with the vitamin. The patients got better. The material used was obtained from the pylorus of hogs, the part located at the bottom of the stomach. Addisonian anemia results in a dangerous reduction of the red blood cells through lack of an intrinsic factor, replaced by the hog-derived material.

Abundance of Elements

➤ ONLY ABOUT a third as much iron, cobalt and nickel occur in the universe as previously thought, Dr. Gerard P. Kuiper of University of Chicago's Yerkes Observatory reported to the Academy as the result of a new study of the abundance of the elements.

Iron and nickel together represent 36.5% of the earth's weight, with oxygen 30.7%, silicon 15.4%, magnesium 11.8%, and only 5.6% for all the other elements.

Save Cancer Patients' Lives

➤ BY CUTTING out the adrenal glands some cases of cancer of various sorts are greatly improved, and the lives of patients saved, Dr. Charles Huggins, University of Chicago, reported to the National Academy.

Twenty-eight patients have been given this treatment followed by administration of cortisone acetate and common salt to replace the normal functions of the adrenal glands.

In seven patients with prostatic cancer there were three remissions, two with appreciable improvement, one case with no effect and one death.

In seven cases of breast cancer, three patients had significant remissions, one patient was slightly improved; there was one post-operative death, and the advance of the disease seemed unimpeded in two.

Among the other patients treated there were two cases of metastases in the lungs which responded favorably.

Atomic World for Society

➤ IT IS an atomic world, even in human relations and the structure of society.

Prof. George P. Murdock, Yale anthropologist, in a paper before the National Academy likened man and woman to two basic types of human atoms, each with several phases, which are infancy, childhood, maturity and senescence.

In maturity, these two kinds of human atoms, Dr. Murdock said, "have a special affinity for each other, producing marriage and a localized family organization in every known society."

Male and female can unite in only three combinations, he explained. There is monogamy. There is polygamy, which is plurality of wives, and also polyandry, in which the woman has more than one husband at the same time.

There are four modes of residence and three rules of descent classified by anthropologists. The local group may be migratory or sedentary. They may or may not be linked to others by political bonds.

All the factors may be taken mathematically in permutations and combinations to define the limited number of fundamental structural or molecular systems of human society, Dr. Murdock has found.

He finds that all the 3,000 to 4,000 known human societies can be fitted into this scheme, much as the chemist can write a formula for each of the compounds that he analyzes.

Time Aids Propaganda Effect

➤ PROPAGANDA MAY have more effect in changing opinions after a lapse of time than it does right away. The reason why was explained at the meeting of the National Academy of Sciences.

The listener may be suspicious of the source and refuse to accept what is told him. After a while he forgets where he heard the yarn but remembers the story itself. At this point he may begin to believe it.

Experiments to test this theory were reported to Academy members by Dr. Carl I. Hovland, of Yale University.

Identical material was presented to different groups of listeners, but was credited to sources of varying credibility. When the material was said to come from trustworthy sources, opinion changes dropped off to agree with the normal rate of forgetting. But when untrustworthy, opinion changes actually increased with lapse of time.

MEDICINE

Cancer Preventive

Treatment that reverses early pre-cancerous condition in women to normal reported. Put mold remedy, aureomycin, on pre-cancer to get reversal.

➤ A CANCER preventive treatment which reversed a very early pre-cancerous condition in women to normal was announced at the meeting of the Southern Medical Association in Dallas.

The treatment consists in putting the mold remedy, aureomycin, on the pre-cancer.

Announcement of this cancer preventive treatment with a report of long-term results in 13 women was made by Dr. J. Ernest Ayre, director of the cancer cytology center, Dade County Cancer Institute, Miami, Fla.

While this seems to herald a mold chemical conquest of cancer, the treatment is effective only in one "special breed of cancer," Dr. Ayre emphasized. In his medical report he termed this kind of cancer "cervical carcinoma in situ," meaning a pre-invasive cancer of the cervix, or lower, narrow end of the womb.

"Of greatest significance," Dr. Ayre said, "is the fact that the results with this treatment indicate this form of cancer is an infectious process and at this stage regression of the cancer is possible with antibiotic (mold chemical) treatment in some cases."

The treatment is not successful in all cases, he stressed. Of the 13 women he reported on, regression of this type of pre-invasive cancer was achieved in six. In one of the six, the condition later recurred.

Similar results in three other women treated with aureomycin have been reported to Dr. Ayre by two other physicians.

Some of the women Dr. Ayre reported on had been getting a modification of the famous Papanicolaou test for cancer for two and one-half years. During all this time, the test, week after week, showed positive. In this test, as Dr. Ayre has modified it, material is scraped from the spot in the cervix where cancer is likely to develop. Microscopic examination of the scrapings shows whether there is a change within the nucleus of the cells.

This change, Dr. Ayre explained, is the earliest sign of developing cancer. With his modification of the Papanicolaou test, the change can be detected at least one year before anything suggesting cancer can be seen by visual inspection.

The women who got the aureomycin preventive treatment also have had this modified test made regularly for the one and one-half years since treatment. The test has been negative, meaning the cancer regressed, all that time in all but one of six women, Dr. Ayre reported. The cancerous condition recurred in the sixth.

Because this pre-cancerous condition is such a very early form of cancer, which would not develop to the terminal stage for one to five years, there is time to cure it by surgery, radium or deep X-ray treatments if the aureomycin treatment is not effective. There is no way of telling whether it will be effective until it has been tried, Dr. Ayre said. The aureomycin treatment only takes three or four weeks to reverse the condition in cases in which it succeeds.

Aureomycin is not effective, in Dr. Ayre's experience, in checking the invasive, spreading kind of cancer cell.

The pre-invasive kind of cancer can be found in one or two out of every 100 women given Dr. Ayre's special cell scraping test.

Dr. Ayre started his work that has led to the success reported now some years ago when he was at McGill University in Montreal. At that time he believed that cancer of the cervix was primarily an infection started by a germ or virus.

On this theory, he began four years ago to try various anti-germ chemicals, including sulfa drugs, penicillin and streptomycin, and various gland hormones. None of them was effective until he tried aureomycin. Scientists at Lederle Laboratories, where aureomycin is made, also had some evidence of an anti-cancer effect of the mold chemical in laboratory animals. But Dr. Ayre's work gives the first evidence on human patients.

There are probably many causes of cancer and many types of infection associated with its start, Dr. Ayre believes. Other mold remedies, or antibiotics, may be effective in some of these other kinds. Dr. Ayre has started work on this also, but is not yet ready to report any results.

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INVENTION

No-Scuff White Sidewall Tire Is Patented

➤ MARCIA GOTTSCHALL, Detroit, has invented a white sidewall tire which, she claims, will not be scuffed by rubbing against the curb. She has assigned her patent, number 2,572,259, to the United States Rubber Company, New York. The sidewalls are protected by a projecting rib around the side of the tire.

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REFRACTING SHIELD—Thurlow Wilfong, University of Washington graduate physics student, here shows the strong refraction of a leaded glass shield used in experiments in which he demonstrated for the first time that positrons will cause Cerenkov radiation, a cone-shaped type of radiation known to be created by electrons.

PSYCHOLOGY

Franklin, Propagandist

➤ BENJAMIN FRANKLIN wrote propaganda literature and used psychological warfare in the Revolutionary War. This new view of the author of "Poor Richard's Almanac" was presented before the American Philosophical Society meeting in Philadelphia by Prof. Gilbert Chinard, professor emeritus of French literature, Princeton University. The Philosophical Society was itself founded by Franklin.

First clue to Franklin as a propagandist was discovered by Prof. Chinard in the Franklin papers of the Philosophical Society where he located correspondence between Franklin and the private secretary of the French foreign minister, Edmund Genet. In these letters, M. Genet requested Franklin to send news of the war from America in order to refute British propaganda. Franklin's "Letters of an American to someone in France" ran in a paper which purported to be published in Antwerp. It was actually, however, a semi-official publication of the French foreign office and came out in Paris.

Search of French libraries disclosed copies of this propaganda sheet which came out three times a month throughout the years from 1776 to 1780. Several pieces were identified by Prof. Chinard definitely as written by Benjamin Franklin. One was supposed to be written by a Hessian prisoner taken at the Battle of Princeton and was intended to persuade other German soldiers to desert from the British army. In it he told how well the prisoners were treated by the Americans and said that George Washington himself had made a speech to the prisoners promising that if they would not bear arms against America they would be treated well and allowed to live in America as free men.

This early propaganda paper was called "Affaires de l'Angleterre et Amerique" (Affairs of England and America).

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GENERAL SCIENCE

Industrial Atom Demand

➤ A LARGE-SCALE demand for exploding atoms, by-products of atom bomb production, exists in industry, but use of such fission products will depend primarily on the price at which they are available. They would give industry certain types of radiation at less cost or in more convenient forms than presently available sources.

This was the conclusion of a survey of industrial uses of radioactive fission products conducted for the U. S. Atomic Energy Commission by Stanford Research Institute. Although many technical and economic problems must be solved before the millions of curies of radioactive wastes now stored at AEC installations can be used, refinement and concentration would make them suitable for industrial purposes, the survey showed.

Present commercially possible uses for such products include the activation of phosphors for self-luminescent signs and markers and in process control instruments, such as measuring the thickness of materials by radiation penetration.

Possible future uses for fission products, where two to five years may be required for development, include cold sterilization of drugs and food and portable low-level power sources.

The report states that "Food sterilization without heat offers many attractive potential markets for fission products, primarily because of the possibility of obtaining unique final products that cannot be obtained economically by known means. The largest market groups include meats, fresh fruits, fresh vegetables, beverages and miscellaneous perishable food products."

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PALEONTOLOGY

Giant "Sea Scorpions"

Volcano stopped giant "sea scorpions" dead in their tracks as they crawled over Ohio's ancient salt sea, scientist says in reporting on fossil find.

➤ GIANT "SEA SCORPIONS," some six feet long, that crawled over the bed of the ancient salt sea covering Ohio, then were stopped dead in their tracks by volcanic eruptions 400 million years ago have been found in Ohio.

"One of the most significant discoveries of eurypterids—sea scorpions—ever made," the fossils represent the largest, best preserved and first complete individuals ever excavated in rocks so old, Dr. Kenneth E. Caster of the University of Cincinnati told the Paleontological Society meeting with the Geological Society of America in Detroit. He reported on his joint investigation of the fossil find with Erik N. K. Waering of Tulsa, Okla.

The scientists believe that a great fall of volcanic ash over the surface of the sea caused the animals' sudden death and burial, preserving the fossils near Manchester, Ohio.

The giant fossils have powerful scissor-like pincers at the end of their abdomens. Such pincers are completely unknown in the fossil record, Dr. Caster said. Only the "earwig", an insect living along sea coasts, has such an appendage today. The pincer, the scientists suggested, may have been employed in sea scorpion courtship maneuvers.

Although scraps of such animals have been known from the rocks found near Manchester, this is the first time that complete individuals have been encountered. Some of the specimens have been freed from their ashbed coffins so completely that they may be handled as one would a crab.

Modern scorpions and spiders are living relatives of the ancient eurypterids. But even when these primitive sea scorpions were alive, 400 million years ago, they may have been "living fossils" preserving an anatomical plan from a much older time.

The great age of the fossils may be better understood when their 400 million years are compared to the oldest cave men known on earth—probably not more than one million years old.

What still puzzles geologists is the source of the volcanic ash. No ashbed of this age had previously been described in this section.

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CLASSROOM TELEVISION—High school science students get a preview of the television microscope that will enable an entire class to look at a specimen simultaneously, demonstrated here by Dr. V. K. Zworykin of RCA Laboratories.

PHYSICS

New Positive Particle Without Mass Discovered

➤ A NEW massless fundamental particle in the subatomic world seems to have been discovered. It is electrically positive, equivalent to the neutrino, which is an undiscovered entity that not only has no mass but no electrical charge as well, combined with high energy that causes it to pass through theoretically anything material.

Two scientists, F. C. Champion and A. A. Ahmed, of the University of London's King's College Wheatstone Laboratory, who report in a communication to the journal NATURE (Nov. 3) the existence and nature of the new "positive particles," contend that "there does not seem less evidence for the reality of their existence than exists for the neutrino at present."

Evidence of the positive massless particles is contained in 20 out of 12,000 cloud chamber tracks of particles emitted from radium E. These had passed through a thin aluminum foil and had a curvature opposite from that of the usual electron tracks. Computations showed that these tracks could be made by particles with an electronic charge but zero rest mass.

Possibly the new particles, if real, could be called positrinos.

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MEDICINE

Epsom Salt in Muscles Stops Pregnancy Ill

➤ EPSOM SALT, or magnesium sulfate, injected into the muscles will save many a pregnant woman who has developed high blood pressure, dropsy, headache and other symptoms of pre-eclampsia from developing eclampsia with convulsions and coma, or unconsciousness.

And adequate doses of epsom salt injected into the veins is more effective in saving lives from eclampsia when that develops than other forms of treatment. So Dr. Willard R. Cooke, professor of obstetrics and gynecology, University of Texas Medical Branch, Galveston, reported to the Southern Medical Association meeting in Dallas.

His report was based on a study of 501 cases of pre-eclampsia and 238 cases of eclampsia treated by various methods, including the epsom salt one.

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MEDICINE

New Kind of Leprosarium

Patients lead a life as nearly normal as possible, complete with home and family and pig, at the Santa Isabel Colony in Paraguay.

➤ A NEW kind of leprosarium where patients with this dread disease are given a life as nearly normal as possible, complete with their own home, family and pig, has been described by the director, Dr. Federico Rios. Dr. Rios, Paraguayan specialist in leprosy, is visiting this country under the auspices of the U. S. Institute of Inter-American Affairs.

Leprosy, Dr. Rios explained, is a disease that affects the mind as well as the body. The more intelligent the patient, the more he suffers psychologically. Leprosy, more perhaps than any other disease, makes the patient conscious that others withdraw from him. He gets to feel that all the world is against him and he reacts by having an inferiority complex and becoming antisocial.

When Dr. Rios took over the direction of Paraguay's national hospital for lepers in 1945, it had a terrible reputation as a pest house. Patients would go there only if they were dragged—to what they saw as inevitable and horrible death.

First act of Dr. Rios was to change the name of the hospital. No longer is it a "Leprocomio;" now it is the Santa Isabel Colony. No walls confine the patient; he does not feel himself under any police control. Patients enter the colony on a voluntary basis. They are completely free to roam its broad acres. If the patient's health permits, when he enters he is given a plot of ground on which he can build his own little house. He is free to bring with him his pig and cow, if he has them, and the Paraguayan's constant companion, his horse. Children, if they are also patients, are kept in the home with the parents. If they are well they are placed in a preventorium.

The leper at Santa Isabel is not permitted to feel cut off from the world. Instead, all the aspects of a normal community life are cultivated. The Paraguayan national sport is Rugby football, so there are three football teams in the colony and they play against each other just as in the regular football leagues. National holidays and religious fetes are celebrated in the customary way. Music is provided by orchestras organized among the patients (practically every Paraguayan plays the guitar or native harp), and professional musicians are brought to the colony for special holiday dances. So far as he is able, the patient practices his own vocation; the carpenter builds, the shoemaker mends shoes, the farmer grows food.

Greatest need of the colony is for the services of a psychiatrist, for the leper requires psychological guidance as well as advice on personal problems. This is now furnished by Dr. Rios himself, but that means personally treating 500 patients.

Modern hospital buildings, each housing about 35 patients, have been constructed with the aid of the Institute of Inter-American Affairs.

In the psychologically planned environment and with modern treatment with sulfa drugs, the patients are being cured, and, as the public sees the lepers go out cured, others become willing to enter for treatment.

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CHEMISTRY

Predict About Elements by Studying "Stand-Ins"

➤ HOW MAN-MADE elements such as berkelium and californium will react with other chemicals can be predicted more accurately by using rare earths as "stand-ins."

Only very minute amounts of man-made elements are formed by cyclotron bombardment or by fission chain reaction. But their atomic structure is similar to the rare earths, so scientists are studying these stand-in elements instead.

Drs. Clifford S. Garner and Dale Meier of the University of California at Los Angeles have just completed studies with europium, rarest of the rare earths. Rare earths are so called because, although they are abundantly present in the earth's crust, it is very difficult to separate one from the other. The chemists were studying how doubly charged europium atoms can become triply charged ones and vice versa. Only a few cases are now known of the electron-transfer type of exchange reaction.

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GEOLOGY

Hawaiian Islands Slowly Sinking Into Ocean

➤ SIXTY MILLION years from now the Hawaiian Island Chain will probably be deeply drowned in water, two scientists from the U. S. Navy's Electronics Laboratory in San Diego predicted in Detroit.

Robert S. Dietz and H. W. Menard told members of the Geological Society of America that the islands are slowly sinking and that in the far future they may become deeply submerged, much like thousand-mile-long range mountain chain recently discovered between the Marshall and Hawaiian Islands. They base their conclusions on echo soundings obtained on a recent Navy-Scripps Institution of Oceanography Expedition to the mid-Pacific.

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DREAD DISEASE—This picture shows the repelling feature of leprosy, demonstrating the reason why lepers through the ages have been treated like outcasts.

MEDICINE

Link Mind and Cosmos

➤ SCIENTIFIC SUPPORT for the old idea that emotional disturbances are linked with the seasons and with the phases of the moon was presented by Dr. Leonard J. Ravitz of Duke Medical School, Durham, N. C., at the meeting of the Southern Medical Association in Dallas.

Scientists have long known that each of us, like a battery, gives off electrical waves. At Duke, Dr. Ravitz has been measuring these "electrical potentials" in insane and normal persons for two years. In plotting the day-by-day results he found marked changes coinciding not only with sun-moon phases but with seasons.

"This doesn't mean," Dr. Ravitz said, "that we can diagnose insanity, but now we can definitely diagnose the changing degrees of mental disturbance."

The most severely ill mental patients are much more emotionally disturbed during the phases of the new or full moons and in the spring or winter. Dr. Ravitz measured one patient for five months and on the basis of the results made a mathematical prediction of his behavior for the rest of the year. The prediction, he said, stood up in the patient's later actions.

With psychotics, readings are consistently higher than in normal persons, Dr. Ravitz said. However, since normal and abnormal respond to the same "field" influences, readings of both follow the same pattern and the same cycles.

As further evidence of the link between emotional and cosmic change, Dr. Ravitz said that there invariably is more unrest on the psychiatric wards at Duke Hospital and the Veterans Hospital, Roanoke, Va., during periods of the new or full moons than at other periods.

Origin of the theory goes back to 1935 when Dr. Harold S. Burr, E. K. Hunt professor of anatomy, and Dr. F. S. C. Northrop, professor of philosophy at Yale University, evolved the "electrodynamic theory of life," based on field physics.

Dr. Ravitz worked closely with Dr. Burr, who worked out experiments for testing the theory.

According to the theory, a universal electrical field imposes its design on both living and non-living matter. In turn, all living matter, from bacteria to man, responds to the universal field and exerts its own influence on it.

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CHEMISTRY

Sugar Beet Chemical

➤ BY FERMENTATION of sugar beet molasses, scientists at the National Research Council of Canada are now producing a chemical, butylene glycol (2,3-butanediol), on a pilot plant scale. This chemical is promising for use in resins, and as a non-drying and blending agent.

With the yearly increase in Canadian sugar beet production, a more stable demand for the molasses by-product would be created if the new process were adopted by commercial interests.

In the process, molasses, diluted with water and supplemented by the addition of an inorganic phosphate, is fermented by suitable strains of bacteria. Both *Aerobacter aerogenes* and *Pseudomonas hydrophila* give high yields of butylene glycol. Gradual improvements in pilot plant design and operation have resulted in yields of about 175 pounds of butylene glycol and 40 pounds of ethyl alcohol from each 1,000 pounds of molasses. Lesser amounts of other organic compounds are also produced but these are not recovered.

In preparing the medium, a continuous method of mashing, sterilizing and cooling is used. This procedure is more practical for industrial use than batch sterilization and gives satisfactory mashes for fermentation. Following the fermentation, the mash is concentrated by evaporation. Butylene glycol is then separated from the residual solids of the molasses by continuous steam stripping under pressure and finally removed from the resulting water solution by a series of distillation operations. Ethyl alcohol may be recovered immediately following the fermentation, by the method used in alcohol distilleries.

The initial impulse to the investigation was a war-time demand for butadiene in the synthetic rubber program. Although butadiene can be produced from butylene glycol, other synthetic procedures have proven more practical. Butylene glycol is however a highly versatile compound and scientists have investigated other possible uses for the substance.

Although closely related to ethylene glycol, the widely-used antifreeze, the isomer of butylene glycol produced from molasses is not useful for this purpose. Among possible applications for the chemical are the prevention of rapid drying in a variety of materials from tobacco to printers' ink, use as a blending agent for such products as ointments, pastes, dyes, wood stains, etc., as an intermediate in the synthesis of diacetyl for flavoring butter or other foods, and as a component of alkyd and polyester resins.

The butylene glycol fermentation is only one of Canada's National Research Council projects involving the use of agricultural and industrial wastes and surpluses. Among the current investigations is research on sulfite waste liquor, a waste product of the pulp and paper industry.

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PSYCHOLOGY

Lower Animals Can Show Man How to Live in Peace

➤ MAN SHOULD go to the lower organisms, germs, plants and animals, to learn how to abandon some undesirable primitive traits that keep the world in conflict, Dr. Paul R. Burkholder, chairman of the department of plant science at Yale University, has told chapters of the Society of Sigma Xi, national society for the encouragement of scientific research.

After explaining the way that organisms, such as the microbes, act on one another and on higher forms, Dr. Burkholder urged the application of the findings of "coaction theory" as it is called to human sociology.

"The important practical prescription appears to be not the intensification of the class struggle, as put forward by some advocates," Dr. Burkholder observed, "but rather the systematic conversion of negative into positive coactions."

For instance, among plants and animals oftentimes friendly cooperation in groups affords great advantages for survival and advancement, he has found.

There are nine kinds of "coaction" possible between weak and strong organisms, ranging from symbiosis in which there is mutual aid, to a mutual depression or dying together, called synnecrosis, in which weak and strong both lose.

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CHEMISTRY

Weedkiller Attacks Grass And Broad-Leaved Weeds

➤ A WEEDKILLER that attacks both grasses and broad-leaved weeds, leaving only bare soil in its wake, has been developed.

Known as CMU, the chemical developed by the Du Pont Company, Wilmington, Del., has been field-tested in every state as well as in Canada, South America and other places. It is not flammable or corrosive, and it is safe for use around warm-blooded animals.

Potential uses for CMU include prevention of grass and weed growth on railroad roadbeds. It will also get rid of growth that can be a fire hazard around lumber yards, gas storage tanks and arsenals.

The chemical is 3-(p-chlorophenyl)-1,1-dimethyl-urea. Small commercial quantities will be available next year.

Science News Letter, November 17, 1951

ENTOMOLOGY

Progress Made in Fight Against DDT-Resistant Flies

➤ PROGRESS IN the battle to find a new weapon against DDT-resistant flies is being made by entomologists at the University of California's Citrus Experiment Station in Riverside, Calif.

They have found ways to reactivate DDT by combining it with other chemicals. These combinations are known as "synergists," and they are expected to prove a potent weapon against flies that can now walk unscathed through formerly lethal doses of DDT.

The fly-killing property of synergists has been boosted from 50 to 200 times the effect of DDT alone on the average, resistant southern California fly, 1951 model, Dr. Ralph B. March of the California station reports.

About 100 different combinations have been tried, of which a dozen have shown promise. Although alone they do not kill flies, all the added materials are closely related chemically to DDT. Much testing, however, remains to be done on the new combinations, Dr. March cautioned.

Science News Letter, November 17, 1951

MEDICINE

Virus Hunt Will Assist Multiple Sclerosis Fight

➤ A VIRUS hunt is on at the Foundation of Applied Research in San Antonio, Tex. If successful, the hunt may give scientists the means for preventing and perhaps treating effectively a disabling nervous disorder, multiple sclerosis.

In charge of the virus hunt is Dr. James R. M. Innes. A grant of $15,000 for the virus hunt has just been given by the National Multiple Sclerosis Society, New York.

The cause and control of multiple sclerosis are not known. According to one theory, it is caused by a virus. Dr. Innes hopes to prove or disprove that theory. If the theory is proved, and the virus identified, scientists may be able to conquer the disease.

Science News Letter, November 17, 1951

MEDICINE

New Anesthetic, Morphine Antidote Are Reported

➤ A NEW local anesthetic, a new chemical antidote to poisoning by morphine and other opiates and a drug to stop vomiting after operations were announced at the meeting of the American Society of Anesthesiologists in Washington.

The new local anesthetic is 2-chloroprocaine. It acts faster and results are longer lasting than with procaine, an older local anesthetic. It was reported as "a very promising agent" for blocking pain nerve fibers in just one region of the body. Drs. Francis F. Foldes and Pearl G. McNall of Mercy Hospital, Pittsburgh, and the University of Pittsburgh School of Medicine reported on this one.

The new antidote, or antagonist, to opiate drugs is N-allyl-normorphine. Given to patients who had had large doses of morphine or demerol, it gave "dramatic" stimulation of breathing and circulation, Drs. James E. Eckenhoff, George L. Hoffman and Robert D. Dripps of the University of Pennsylvania Hospital reported. It can also counteract the effects in babies of the sedatives given the mothers in childbirth.

The anti-motion sickness drug, dramamine, reduced vomiting after operations 50%, Drs. Daniel C. Moore, LeGrande Anderson, Gordon Wheeler and John Scheidt of Seattle reported.

Science News Letter, November 17, 1951

GEOLOGY

Find 60,000,000-Year-Old Meteorites in Texas

➤ "CELESTIAL RAIN" that fell on our planet about 60,000,000 years ago is just now beginning to come to light, Dr. Virgil Barnes of the University of Texas told the Geological Society of America meeting in Detroit.

The distribution of "tektites," or meteorites, found near Muldeen, Tex., suggests that the stony fragments from space are weathering out of deposits laid down during the Upper Eocene period. Scientists are comparing these with meteorites of more recent origin.

Science News Letter, November 17, 1951

INVENTION

Warning Words Come From Surface of Road

➤ ACTUAL WORDS of warning will come to the automobile driver from the surface of a highway with an invention which brought Floyd J. Dofsen of San Francisco patent 2,574,090. Rights are assigned to Electric Manufacturing Company, Inc., of the same city.

Passing over special lengthwise panels set in the surface of the paving, audible words, such as "danger," "shoulder" and "crossing," will be heard inside the car.

These panels, or sound tracks as they are called by the inventor, have an undulating upper surface conforming to the shape of a predetermined sound wave. While set in the surface, the undulations lie above the road surface so that a vehicle traveling along the roadway cooperates with the irregular surface to produce an audible sound. The body of the vehicle acts as a sound box to give an understandable warning to the driver.

Science News Letter, November 17, 1951

IN SCIEN

GEOLOGY

Southern Rockies Once An Island in the Sea

➤ THE SOUTHERN Rocky Mountain region was a large island in a sea about 250,000,000 years ago, Prof. Kenneth G. Brill of St. Louis University has found.

He told the Geological Society of America meeting in Detroit that the center of this island gradually sank down into the sea and that the sides were uplifted, forming two islands with a long narrow strait between them. This strait extended from what is now northwest Colorado to northern New Mexico. Shells of sea animals found in sediments of this area show that the sediment was deposited beneath the sea, brought down by erosion from the surface of each island. The sediments of the former trough were elevated to 10,000 or 12,000 feet above sea level when the Rocky Mountains were formed.

Science News Letter, November 17, 1951

MEDICINE

One in a Thousand Error In Mass Blood Typing

➤ A MISTAKE rate of one in 1,000 in blood grouping and of seven in 1,000 in Rh factor typing might be expected in a mass blood typing program.

Cost of the program, exclusive of voluntary contributions in work and equipment, may be 55 and one-half cents per person typed.

About three-fourths of the persons typed will carry tags showing their blood type, mostly in purse, wallet or on key chain.

These figures are from the Jackson, Mich., mass blood typing program carried on during the winter months of 1950-1951 under the auspices of the Michigan Civil Defense authorities. They are reported by Dr. Jacques H. Ahronheim in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Nov. 10).

"While an error in blood grouping might prove to be fatal," Dr. Ahronheim points out, "the immediate availability of blood types of potential recipients is likely to save many lives."

Disastrous results from incorrectly determined Rh factors, he adds, are "extremely rare."

Only grim reality in the form of a major disaster, military or other, he states, can answer the principal question . . . will enough lives be saved by a mass blood typing program to justify the expenditure of time, effort and funds.

Science News Letter, November 17, 1951

ENE FIELDS

PSYCHOLOGY

Mental Experience Compensates Brain Loss

➤ TRAINING AND experience in mental work can make up to a "striking" degree for loss of a large part of the brain cortex.

Experiments showing that this is true for monkeys were reported by Dr. Harry F. Harlow, of the Department of the Army, at the meeting of the National Academy of Sciences in New Haven, Conn.

Whether this is true for humans who have had a part of the brain destroyed by injury, cancer or strokes cannot be stated on the basis of the monkey experiments, which were designed primarily to get a better understanding of the functioning of the brain.

Dr. Harlow's studies were made on eight rhesus monkeys which for five years had been extensively trained and tested for ability to solve various problems. Four monkeys were operated on in a way that produced extensive damage on both sides of the brain to both frontal and posterior, or rear, association areas.

After the operations, the four monkeys were able to perform some discrimination tests as well as the unoperated monkeys. Their performance showed an efficiency which normal, untrained monkeys could not attain until after hundreds of trials.

Only on such a very difficult test for an animal as the oddity test did the brain damage show adverse effects. In this test, the animals must learn that when there are three objects, two alike and a third different, they must pick the different one, no matter where located, to get a reward.

Science News Letter, November 17, 1951

PUBLIC HEALTH

Bread and Water Diet When A-Bomb Strikes

➤ IT WILL be bread and water for New Yorkers for a week, if an atom bomb strikes that city.

The bread and water diet, plus milk for children and expectant and nursing mothers, is what the city fathers are counting on to tide the population through the first week after such an attack, it appears from a report by Dr. Robert S. Goodhart of the National Vitamin Foundation, Inc., and Dr. Norman Jolliffe, director of the bureau of nutrition of the New York City Department of Health, to the American Public Health Association meeting in San Francisco.

Enough nourishment to sustain life and morale for a period up to one week can be provided by one and one-half pounds of bread daily, these scientists calculated.

Other cities might not be able to count on bread as the real staff of life in such an emergency. But in New York the location of bakeries, their actual and potential output and the organization and size of their distribution system are such that it is entirely feasible to depend on bread as the staple in any event short of a complete disaster.

New Yorkers are also being advised to market on a two-day to one-week basis rather than a daily basis and to keep on the "reserve" shelf in each home a supply of familiar and liked foods to be kept fresh by rotation through normal use. Suggested for this reserve shelf are dry skim milk, canned milk, canned fruit juices, canned soup other than clear soup, jelly, peanut butter or other spread for bread, and such main dish foods as spaghetti, baked beans, potatoes, corned beef hash, meat and vegetable stew.

Science News Letter, November 17, 1951

INVENTION

Patent System for Blind Plane Landing

➤ A PICTURE of the outlines of the airfield's runway will appear in front of the pilot's eyes, when bad weather obscures his view of the field, with use of a new invention which received patent 2,572,043.

Raymond J. McElhannon, Flushing, N. Y., has assigned his rights on the invention to the Defense Department.

Science News Letter, November 17, 1951

INVENTION

Anchor for Mine Roofs Will Help Prevent Falls

➤ FEWER FALLING roofs, the greatest cause of fatalities of miners in coal and other mines, are promised with an explosive anchor to hold the bolts firmly in place after once set. Roof bolting is the modern method of preventing the roofs in mines from falling. The method is already in use in many mines, replacing in large part the older method of using timbers to hold up the roof.

In the bolting method, steel rods are driven up into the roof, or inserted in drill holes, to hold the roof structure together. For best results the upper ends of these rods or bolts must be anchored in the rocks so that they will have sufficient holding power. This invention provides an expandable upper end on each bolt, within which an explosive is placed. After insertion, the explosive is detonated by electric means, thus forming the anchor.

This invention brought patent 2,573,880 to Robert Temple, Swissvale, Pa. Rights are assigned to Temple Velocity Equipment, Inc., Wilmington, Del.

Science News Letter, November 17, 1951

AERONAUTICS

Suction Surface on Airplane Wing to Reduce Drag

➤ POROUS SURFACES on airplane wings through which air can be sucked are proposed by aeronautical engineers in London. Experimental work is under way to determine if wings with such surfaces would be subject to less drag than the conventional wings now used. Suction-wing models have already been tested in wind tunnels.

The suction of part of the air in the so-called boundary layer next to the surface of the wing, it is thought, would prevent the turbulence that forms in the layer as it approaches the trailing edge of the wing and creates a heavy drag. The idea is similar to that proposed and experimented on by both British and American engineers in recent years of a slotted wing to accomplish the same purpose.

In this plan, porous metal surfaces would be set in the wings or this type of surface would be used for the entire wing and even the fuselage. The probable use will be strips of porous metal at critical places along the wing surface.

Science News Letter, November 17, 1951

MEDICINE

New Medicine for Migraine Is Best Yet Prepared

➤ A NEW medicine for migraine headache sufferers was announced at the meeting of the Southern Medical Association in Dallas.

The medicine is a combination of ergotamine tartrate, caffein and bellafoline, all of which have proved somewhat effective, plus phenobarbital.

This new combination was termed the "best preparation so far" in a report by Dr. Robert E. Ryan of St. Louis University, St. Louis, Mo.

It is not yet on the general drug market.

The sedative quality of the new medicine may be the correct solution to the migraine problem, in Dr. Ryan's opinion, and bears out his theory that nervous tension is one of the great causes of migraine headaches.

The only side effect from the new medicine is drowsiness. This, Dr. Ryan said, may be beneficial because the migraine headache sufferer is near exhaustion. The drug is effective even when taken after the headache is well under way, although other drugs must be taken at the start of a headache to relieve the migraine type.

Dr. Ryan stressed the importance of a careful examination and complete diagnosis of the type of headache from which a person is suffering before any treatment is tried. When tension is a factor, the patient as well as the headache must be treated. The physician should help the patient find the cause of the tension. If it cannot be removed, then the patient must be taught to live with it without tension.

Science News Letter, November 17, 1951

NUTRITION

Thanksgiving Is All-American

Turkey, cranberries, sweet-potatoes, pumpkins, corn bread, and other Thanksgiving foods are American in origin. You can set an all-American holiday table.

By WATSON DAVIS

➤ THANKSGIVING DAY is a purely American feast, begun traditionally by the Pilgrims, and continued through the centuries as a national day of religious and gastronomic significance.

Even today when all the foods of the world are available to enrich our daily diet, the Thanksgiving menu of the average household is still predominantly American in origin and production.

A sumptuous feast can be spread with only the kinds of food that the pre-Columbian Indians knew and taught the white men how to raise and use. An all-American Thanksgiving menu is tempting to a gourmet's taste and satisfying to a hungry, growing boy.

Turkey, cranberries, both white and sweet-potatoes, numerous sorts of beans, squash, pumpkin, tapioca, corn, including sweet corn and popcorn, peppers, avocado, cocoa and chocolate, oysters, pineapple, chestnuts, peanuts, brazil nuts, cashew nuts, and while not strictly a food the tobacco of the after-dinner cigarette, cigar or pipe. All of these are of strictly American origin. Even without excluding non-American dishes, the usual Thanksgiving dinner, with roast turkey, cranberry sauce, string beans, corn bread, pumpkin pie on the menu, is American enough. Those who wish can easily build in their kitchens a strictly made-in-America Thanksgiving bill of fare.

Turkey Center of Feast

The turkey that is the center of the usual Thanksgiving feast has a dual claim to the 100% citizenship. It is as native to the American continent as the Indians. Yet the turkey also has a record of early immigration from Europe.

This paradox arises from the fact that our domestic turkeys are not descendants, but cousins, of the wild turkeys that the Pilgrims hunted and ate. The wild turkeys are somewhat smaller than the domesticated sort and they still survive in a few of our timbered regions. The domestic fowl is descended from the Mexican species which the Aztecs had tamed and which their Spanish conquerors carried back home with them. After being reimported from Europe, it has become well established in the United States, well to the north of its original range.

If both Benjamin Franklin and John James Audubon, great early American scientists, had had their way, the turkey would have been the national bird on our national emblems instead of the bald eagle. There was sentiment, backed by the characters of the two birds, that argued in favor of the turkey as a national symbol. On Thanksgiving the turkey is certainly the national bird.

Cranberry sauce is as American as the roast turkey that it accompanies to the relish of the feast. Cranberries are found only on the American continent. The cranberry bogs of New Jersey are famous the world over. The cranberry prefers the low, wet lands of northeastern United States. The cranberry thrives from Newfoundland to Lake Erie and grows wild occasionally as far south as Virginia and Arkansas. The one most often seen on the market is the larger of two species properly recognized as cranberries.

"Fixin's" are indispensable to the turkey, and sweet-potatoes are indispensable to the "fixin's." Sweet-potatoes, as well as the white potatoes, misnamed Irish, are American in origin. The sweet-potatoes, "taters" south of the Mason and Dixon line, are probably of tropical origin. At any rate, they thrive best now in the warmer parts of the country. Don't call them yams, as this name really belongs to an African plant which plays much the same role in its own country but has never come into wide use in the United States. The sweet-potato is a vine very closely akin to the common ornamental morning glory, while the yam is a vine related to the lily family.

AMERICAN WILD TURKEY—In this famous painting by John James Audubon is shown a bird such as the one that was the original main course of the Pilgrims' first Thanksgiving. It is actually a cousin of the domesticated turkey raised for the market today.

White Potato Is Peruvian

The white potato is not Irish but Peruvian in origin. It got its misnomer because it was so widely grown there and Irish immigrants in the early 1700s brought large quantities of them to the United States. Not long after Columbus, the potato was carried to Spain from Peru, where the natives had domesticated it and cultivated it for thousands of years. Thence it was taken to other parts of Europe, including Ireland. The British introduced the potato into Bermuda from where it traveled to Virginia Colony in its early years. The white potato thus has a right to a place on the all-American Thanksgiving table.

For the salad course, there may be avocados, also called alligator pears, for these are native to this hemisphere. If there is to be something before the soup course, oysters on the half shell are appropriate, for the kinds eaten in America are distinctly our own. The sauce for the oysters made of tomatoes and peppers is also American in origin.

The bread should be corn bread, of course.

Corn is the greatest of the agricultural gifts of America to the world. When the first settlers from England found this grain being cultivated by the Indians they called it Indian corn to distinguish it from the use of the word corn to mean in British usage all kinds of grain, wheat, barley, rye and all the rest. Our corn is still maize to Europeans. Our history books tell us how corn, cached by the Indians of the region, saved the Pilgrims of Plymouth Colony during the terrible first winter of 1621.

Corn probably originated in the South American highlands but by the time the white men came its cultivation had spread as far north on this continent as the climate permitted. From Columbus onward every European coming to America met it. Even in those days there were varieties, sweet corn and popcorn as well as the kind that the Indians ground into bread and other staple foods.

Just where corn originated is hidden in its ancient use and the changes that it has undergone through long centuries of cultivation. Even if its wild parent survives, it

would be difficult to recognize it. Some botanists conjecture that the ancestor of the corn was the Mexican grass teosinte.

In the fields of Indian corn found by the early colonists, there were orange-yellow pumpkins growing much as they are grown today. The white men learned this agricultural trick from the Indians. The fruit pie is a typically American dessert and the pumpkin is a typically American pie material.

Pumpkin Called Turkish Cucumber

Pumpkin pie is as Thanksgiving as turkey, yet just 50 years after Columbus the American pumpkin had been so adopted in Europe that it was being called the Turkish cucumber. A learned herbal, published in Basel (Switzerland) in 1545 described the pumpkin unmistakedly and observed that it was called Turkish cucumber because it arrived in middle Europe from Turkey. Watermelons, squashes, melons and cucumbers were all lumped together. Strangely enough, corn also got a Turkish label in this description, because it had been brought recently from Turkey, Asia and Greece. Plants rapidly became internationalists of forgotten origin in those early days. Pumpkins have relatives all over the world and the modern varieties have become much mixed with foreign stocks from Asia and Africa, which give us our amazing assortment of squashes, melons and gourds. But the yellow pumpkin that makes our pies is still of straight American ancestry.

Beans of many varieties deserve a place in the all-American Thanksgiving table, for they were extensively cultivated by all the native populations of the New World. They were placed in the graves along with corn and other plants as food offerings to the dead. So navy bean soup and string beans appropriately belong on the menu.

Nuts give Thanksgiving a double dessert, and they can be peanuts, pecans, brazil nuts, cashews or possibly even chestnuts and still be American. The chestnuts in the turkey stuffing will be of eastern Asiatic origin, strictly speaking, since the native American chestnut has been virtually wiped out by the blight that swept the country about two decades ago, killing every chestnut tree in its path. Resistant species from abroad have been introduced.

Peanuts were an important food crop in pre-Columbian times in Peru and Brazil. So, too, manioc was a basic food plant to the Indians of the Caribbean and Amazon basin. Since tapioca is made from manioc, this common dessert can be served at our Thanksgiving. So may another tropical plant, the pineapple. While it is now usually imported in cans from Hawaii, it is of tropical American origin.

Chocolate or cocoa is the fitting Thanksgiving beverage since the cacao tree, source of chocolate, is native to the tropical forest regions of the western hemisphere.

Columbus discovered tobacco for the European world and the Indians smoked it in pipes and cigars, chewed it and used it as snuff. Cigarettes at Thanksgiving therefore carry out the American tradition.

Today many of these all-American foods are delivered to our kitchens in cans or frozen. The pioneers were limited to more primitive methods of food preservation. That is one of the prime reasons for the fall harvest festival of Thanksgiving in its American form. There was reason for a big feast before they were limited by the foods of winter.

America is a land of rich and varied food supplies, capable of sharing its bounty with other areas of the world and willing to aid other countries to raise larger crops of food, often of western hemisphere origin. We are thankful for this at this Thanksgiving as it may help to bring peace to the future of a less hungry world.

Science News Letter, November 17, 1951

PUBLIC HEALTH

New Blood Test For Tuberculosis

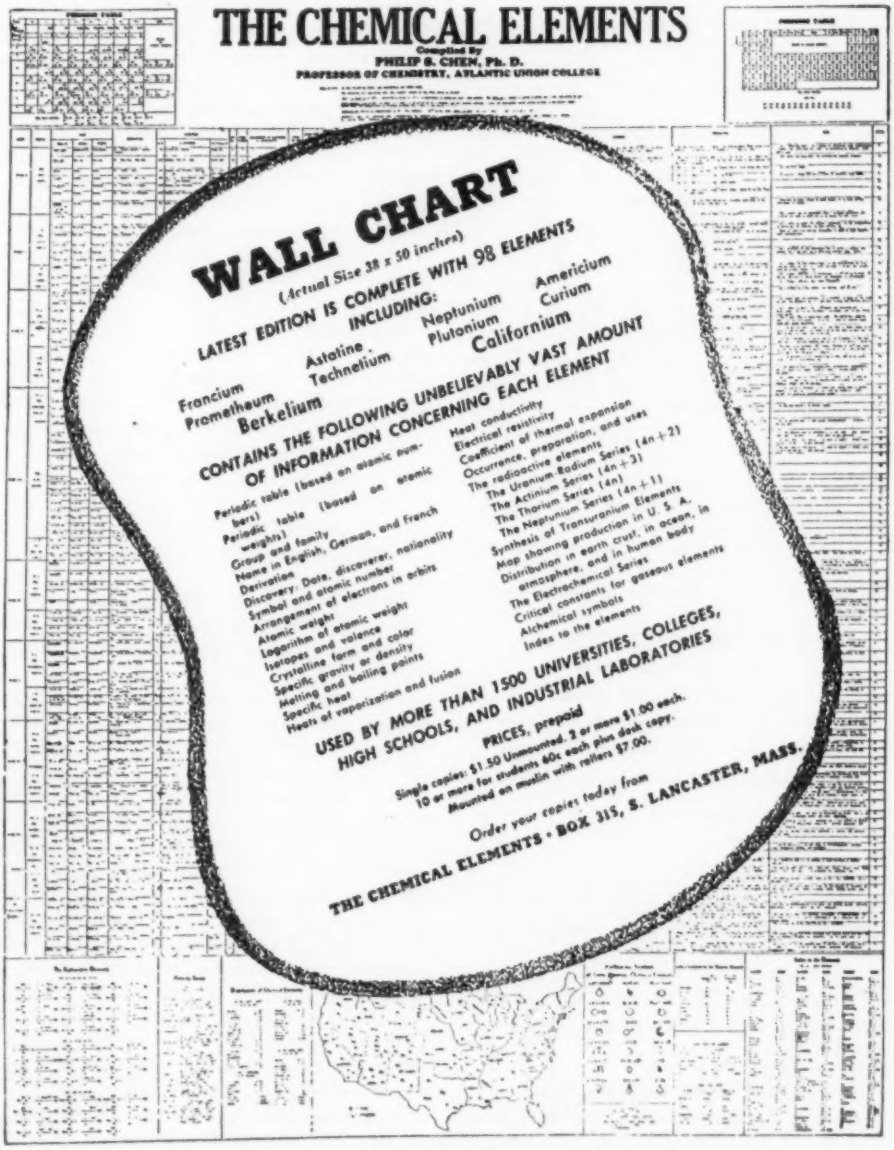
➤ A NEW blood test for tuberculosis was reported by Dr. Edgar R. Maillard of the Nassau County, N. Y., Department of Health at the meeting of the American Public Health Association in San Francisco.

The test is a complement fixation test, of which the most familiar is the Wassermann test once widely used for detection of syphilis.

Antibodies to tuberculosis germs were detected by this new test in the blood serum of about 93% of tuberculosis patients.

Dr. Maillard believes, from preliminary studies, that a pattern of response to the test may evolve which will help doctors determine whether the disease is progressing or becoming arrested under treatment.

Science News Letter, November 17, 1951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BOTANY

NATURE RAMBLINGS

Chestnuts

➤ GATHERING CHESTNUTS after the first frosts brought the burrs to the ground was once as traditionally American as a Thanksgiving Day turkey garnished with cranberry sauce. Indeed, the feast day bird was often stuffed with chestnut dressing.

But the American chestnut has been forcibly removed from our forests by a fungus-caused blight and most chestnuts bought on today's market are imported from Italy or Spain. The few homegrown varieties are from Oriental trees imported to this country.

Beginning about the turn of the present century with a little focus of infection around New York, the imported Oriental pest that eliminated the chestnut spread by leaps, until today all that is left of America's once beautiful native chestnuts are a few scattered sick trees in western Tennessee and northern Mississippi. There are also a scattered few healthy trees left in northern Midwest states and on the Pacific Coast.

In the past 40 years government scientists and forest experts have been at work trying to develop a new chestnut to replace the native type.

The nuts are pleasant eating for human beings and important food for such wildlife as wild turkeys, but that is the smallest part of the story. Bark and wood are about our most important source of tanning for making leather, and the chestnut tree is useful for this as well as in places where resistance to decay is important, as in telephone posts and railroad ties.

Tourists through the Allegheny highlands and in other forested parts of this country, see many naked skeletons standing out above the woods, monuments of the great tragedy that struck the American chestnut. These dead stands of blight-killed trees are being "mined" for their wood, but their numbers grow smaller every year.

Although believed to have been spared at first, the fact finally developed that the deadly fungus disease was attacking chinquapins, the native shrubby or small tree species related to the chestnut. Working with some of these native small trees, with blight resistant chestnut species brought in from the Orient where the blight itself came from, and with sprouts that have sprung up from killed chestnuts, some fairly resistant hybrids have been obtained.

Within a span of years, it is expected that hybrid American-grown chestnuts may once more be available for their traditional task of stuffing the traditional bird.

Science News Letter, November 17, 1951

MEDICINE

Dandruff Traced to Lack of B Vitamin

➤ DANDRUFF AND an associated skin disease known as seborrheic dermatitis are due to lack of a B vitamin, pyridoxine, and can be cleared up within 72 hours by application to skin or scalp of an ointment containing the vitamin, three doctors reported at the meeting of the Central Society for Clinical Research in Chicago. The doctors reporting are A. William Schreiner and Richard W. Vilter of the University of Cincinnati College of Medicine and William Slinger of Rockford, Ill.

Science News Letter, November 17, 1951

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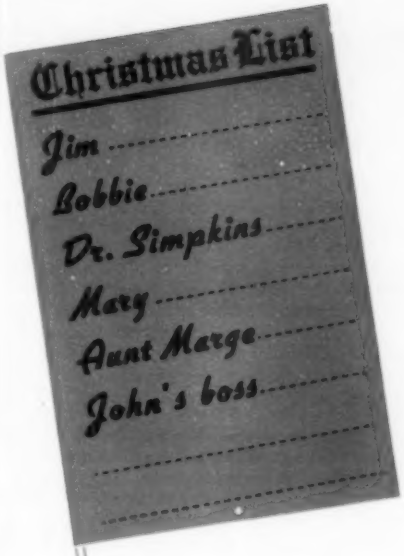

ON YOUR CHRISTMAS LIST

are there any of the following:

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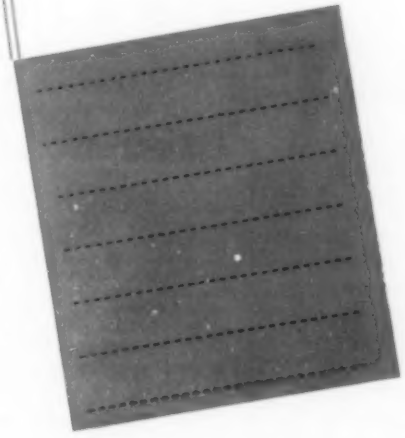

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Books of the Week

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ASTM STANDARDS ON TEXTILE MATERIALS (WITH RELATED INFORMATION): Specifications, Tolerances, Methods of Testing, Definitions and Terms—ASTM Committee D-13 on Textile Materials—*American Society for Testing Materials*, 597 p., illus., paper, $5.00. A proposed method of testing nylons for snag resistance involves pulling the stocking over a piece of sandpaper.

ADVANCED FLUID DYNAMICS AND FLUID MACHINERY—Ralph C. Binder—*Prentice-Hall*, 426 p., illus., $6.00. An extension of the author's *"Fluid Mechanics."*

AMERICAN FOREST POLICY: A Study of Government Administration and Economic Control—Luther Halsey Gulick—*Duell* for the Institute of Public Administration, 252 p., $3.50. When a government acts to solve an economic problem, what happens? This is the question which this study of our national attitude toward our forests poses and tries to answer.

DOGS, DOGS, DOGS: Stories of Challengers and Champions, Heroes and Hunters, Warriors and Workers—Stories selected by Phyllis R. Fenner—*Watts, F.*, 270 p., illus., $2.75. Pen drawings by Manning deV. Lee illustrate these old and new favorites of dog-loving boys and girls.

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EDUCATION UNLIMITED: A Community High School in Action—Grace S. Wright, Walter H. Gaumnitz, and Everett A. McDonald, Jr.—*Govt. Printing Office*, Office of Education Bulletin 1951, No. 5, 35 p., illus., paper, 15 cents. A case history of a small rural secondary school which has successfully overcome its limitations.

ENVIRONMENT AND HEALTH—*Govt. Printing Office*, 152 p., illus., paper, 75 cents. A readable account of Public Health Service programs which help local governments control major environmental threats to health and safety.

THE FIRST BOOK OF BIRDS—Margaret Williamson—*Watts, F.*, 69 p., illus., $1.75. Telling children where to look for birds and the interesting things to look for in them.

THE FIRST BOOK OF FIREMEN—Benjamin Brewster, *Watts, F.*, 42 p., illus., $1.75. Hooksies and smoke-eaters all over the world, now and then, are described for the beginning reader.

FOUNDRY WORK—Edwin W. Doe—*Wiley*, 109 p., illus., $1.76. This high-school text-book tells the student how to work in a foundry.

GODS, GRAVES, AND SCHOLARS: The Story of Archaeology—C. W. Ceram, translated from the German by E. B. Garside—*Knopf*, 426 p., illus., $5.75. A German newspaper editor and dramatic critic who has made archaeology a hobby writes this interesting account of the drama of man's past.

IN QUEST OF PEACE AND SECURITY: Selected Documents on American Foreign Policy 1941-1951—U. S. Department of State—*Govt. Printing Office*, State Publication 4245, 119 p., paper, 55 cents. Excerpts and complete documents important in recent history.

THE KREMLIN SPEAKS: Excerpts from Statements Made by the Leaders of the Soviet Union—U. S. Department of State—*Govt. Printing Office*, State Publication 4264, 37 p., paper, 15 cents. These quotations from statements made by Soviet political leaders, from Soviet laws and Communist doctrine, and from official party periodicals, illustrate the Soviet Union's propaganda techniques, which are similar to those of Hitler.

A LABORATORY COURSE IN BIOLOGY—James C. Adell and Louis E. Welton—*Ginn*, 282 p., illus., paper, $2.20. To promote learning by doing.

MARKETING DRY EDIBLE BEANS AND PEAS—Reed A. Phillips and D. B. DeLoach—*Govt. Printing Office*, USDA Technical Bulletin No. 1044, 105 p., paper, 30 cents. Many charts, graphs, and maps illustrate this rather technical account of a nation-wide survey.

MINNEQUA PLANT OF COLORADO FUEL AND IRON CORPORATION AND TWO LOCALS OF UNITED STEELWORKERS OF AMERICA: Case Study No. 9, Causes of Industrial Peace Under Collective Bargaining—George W. Zinke—*National Planning Association*, 95 p., paper, $1.00. Two factors in industrial peace at this plant are "the existence of a guiding wage structure and of arrangements for applying it to changing conditions" and, in union and management, "a spirit of mutual recognition of each other's needs."

NORTH WITH THE SPRING—Edwin Way Teale—*Dodd, Mead*, 366 p., illus., $5.00. A naturalist and his camera followed spring's 15-mile-a-day advance over our nation from the Everglades to Mount Washington.

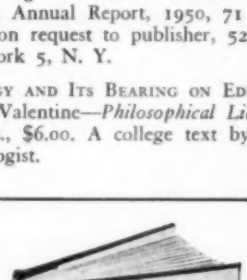
THE PEOPLE IN YOUR LIFE: Psychiatry and Personal Relations by Ten Leading Authorities—Margaret M. Hughes, Ed.—*Knopf*, 278 p., $3.50. Authoritative lectures on mental health, originally given at Town Hall, together with answers to questions asked by the audience.

POINT FOUR PIONEERS: Reports From a New Frontier—U. S. Dept. of State—*Govt. Printing Office*, State Publication 4279, 36 p., illus., paper, 20 cents. The work of Frank Pinder in Liberia, of Albion W. Patterson in Paraguay, and of Horace Holmes in India, show that our war against hunger and poverty "must be fought not only with technical knowledge but also with patience, courage, creative imagination and a humble spirit."

PROCEEDINGS NUMBER—*American Council of Learned Societies*, Bulletin No. 44, 122 p., paper, $1.00. Includes a chapter on the "Conquest of Fear," as well as the usual reports and directory.

PROGRESS AND PROSPECTS: Scientific Research in Physiology, Nutrition and Special Uses of Sugar—*Sugar Research Foundation, Inc.*, Seventh Annual Report, 1950, 71 p., paper, free upon request to publisher, 52 Wall St., New York 5, N. Y.

PSYCHOLOGY AND ITS BEARING ON EDUCATION—C. W. Valentine—*Philosophical Library*, 674 p., illus., $6.00. A college text by a British psychologist.



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THE PSYCHOLOGY OF C. G. JUNG—Jolande Jacobi (K. W. Bash, Translator)—*Yale University Press*, rev. ed., 244 p., illus., $3.75. This authoritative presentation of the theories of one of Freud's chief rivals includes a foreword by Jung himself.

RADIATION SCREENS IMPROVE WORK CONDITIONS IN "HOT SPOTS"—George F. Haines, Jr.—*Mellon Institute*. 2 p., illus., paper, free upon request to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa. Not atomic radiation but plain heat is the industrial "contaminant" this article tells how to control.

RECENTLY INTRODUCED VARIETIES OF HEAD LETTUCE AND METHODS USED IN THEIR DEVELOPMENT—G. W. Bohn and Thomas W. Whitaker—*Govt. Printing Office*, USDA Circular No. 881, 27 p., illus., paper, 15 cents. Sixteen kinds of lettuce introduced by Agriculture and the different environments to which they are suited are described.

A REVISED CLASSIFICATION FOR THE BIRDS OF THE WORLD—Alexander Wetmore—*Smithsonian*, 22 p., paper, 15 cents. Dr. Wetmore's own studies and review of others' work have led to this first classification printed since 1940.

SCIENCE IN PROGRESS: Seventh Series—George A. Baitsell, Ed.—*Yale University Press*, 512 p., illus., $6.00. Based on Sigma Xi National Lectures, these articles describe recent major contributions to science in the words of the men responsible for them.

THE THEORY AND CONSTRUCTION OF A SELF-CHARGING VAN DE GRAAFF GENERATOR—Richard H. Waters—*American Electrostatic Company*, 20 p., illus., $2.50. Telling how to build this instrument with material and tools available in the home workshop.

THE TSIMSHIAN: Their Arts and Music—Viola E. Garfield, Paul S. Wingert, and Marius Barbeau—*Augustin*, 290 p., illus., $6.00. These Indians of British Columbia are distinctive in their language, tribal relationships and authority of chiefs; includes music and words to 75 songs.

WATERFOWL AND THEIR FOOD PLANTS IN WASHINGTON—Charles F. Yocom—*University of Washington Press*, 272 p., illus., $5.00. Hunters as well as ornithologists and ecologists will be interested in this work.

Science News Letter, November 17, 1951

New hybrid guayule, rubber-yielding plant of the dry Southwest, gives up to 40% more *rubber* than the best wild varieties of a decade ago.

PUBLIC HEALTH

Avoid Fire Hazards From Television

➤ IF YOU have a television set in your home, be sure you do not let it create a fire hazard.

Advice on this new home danger is given by the U. S. Rural Electrification Administration as follows: One hazard may be the way the aerial is attached to the chimney. This danger is somewhat greater on farms than in town, because in the country aerials must be high.

If not securely attached, the constant vibration of the aerial in the wind may weaken the mortar, causing bricks to come loose or cracks to develop in the chimney wall. If this occurs, two things can happen: Sparks can fly onto the roof, or hot gases accumulate in the walls or attic of the house. Either might result in a disastrous fire. And remember to have the television aerial grounded against the possibility of a lightning strike.

The specialists also suggest television precautions to take inside the house. One concerns location. Each set uses from two to three hundred watts of electric power, so it generates a good deal of heat. If the owner pushes it flat against the wall, or into a tight corner, this may cut off air circulation, and the heat that accumulates may damage the set. It might even result in a fire inside the cabinet.

Television manufacturers provide for further ventilation by putting small vent holes in the cabinet—usually at the top or bottom of the set. The homemaker who puts a decorative mat or covering over the cabinet may nullify this safety effort of the maker. With a table model, it's well to take care that the family doesn't slide magazines into the space between the bottom of the cabinet and the table. This will shut off the air from the vents in the under side.

Science News Letter, November 17, 1951

A new *raspberry*, developed in New York State, bears two crops a year and is named the "September" because the second bearing is late in that month.

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Science News Letter, November 17, 1951

PEPPER MILL, for use on the dining table, has a grinder in its base that is operated by manually turning its stainless steel top. Pepper beans are inserted through a slot on the top, the ground pepper comes out of tiny holes in the bottom. Side walls are of clear glass.

Science News Letter, November 17, 1951

KEY HOLDER, with the familiar chain-type ring, has a plastic holder which contains a miniature electric battery and flashlight bulb. Controlled by a tiny switch, the light makes keyhole-finding easy.

Science News Letter, November 17, 1951

RADIOACTIVITY DETECTOR is a direct-reading quartz fiber instrument to measure radiation intensity which can be used in low range survey work or in the higher ranges following the release of large quantities of radioactive materials. When used in higher ranges, the instrument is inverted to throw a loosely-hinged resistor into position.

Science News Letter, November 17, 1951

PERFUME CAPSULE, shown in the photograph, may be carried in quantities in a small case in the handbag. Each capsule contains in a tiny air-tight throw-away container just enough perfume for a single application. To apply, the capsule is held on end and squeezed.

Science News Letter, November 17, 1951

"UNTOUCHABLE DICE" for home games include a pair of regular dice sealed in a round box with a transparent plastic top and a bottom that rotates rapidly when a button is pushed. The twirl of the base shoots the dice, which come to rest when rotation stops.

Science News Letter, November 17, 1951

ROTARY SAW and frame, for attachment to a hand-held, electrically-driven drill, has a quick-acting worm-driven clamp to hold it in correct alignment with the drill, and the saw is adjustable to cut bevels up to 45 degrees. Depth of cut is adjustable from one-eighth to one and one-eighth inches.

Science News Letter, November 17, 1951

T-SQUARE for the draftsman is held in true position on the drawing board by magnetism in a recently patented type. A magnetic metal strip is attached to one end of the board. An elongated permanent magnet, with roller ends, is secured to the T-square straight-edge head piece.

Science News Letter, November 17, 1951

Do You Know?

More forest *fires* start on Sunday than on any other day.

The Air Force School of Aviation Medicine recommends *airport* runway markers of black with yellow outline for light-surface landing strips, and white markers with yellow outlines for asphalt strips.

Driving habits of car operators are the most important factor in determining *tire mileage.*

Most flowering *plants* require an external agent to transfer the male pollen to the female stigma before the ovule or egg is fertilized to develop into seed and fruit.

Pollen collected by bees from flowers supplies bee colonies with the necessary proteins, minerals and vitamins, while nectar supplies the carbohydrates.

GADGET BULLETIN

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The GADGET BULLETIN is a post card with names and addresses of manufacturers and inventors of the products described on this page every week.

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